Consumer and Corporate Affairs Canada
Consommation et Corporations Canada

(11) (A) No. 1 150 331

(45) ISSUED 830719

(52) CLASS 273-161

(51) INT. CL. ^{3} A63B 59/14

(19) (CA) CANADIAN PATENT (12)

(54) HOCKEY STICK IMPROVEMENT

(72) Koabel, Larry G.,
Canada

(73) Granted to Cooper Canada Limited
Canada

(21) APPLICATION No. 387,876

(22) FILED 811014

No. OF CLAIMS 5

Canada

DISTRIBUTED BY THE PATENT OFFICE, OTTAWA
CCA-274 (11-82)

ABSTRACT

There is provided a hockey stick including a handle and a blade, the handle being rectangular with a first pair of sides parallel with the blade and a second pair perpendicular thereto. The handle has two high-strength strips of material along the first pair of sides which are bonded to a lower strength core between the strips and spacing them apart. The blade has a tongue bonded within a groove at the bottom of the handle. The core diminishes in width adjacent to and in the direction of the handle bottom, with the high-strength strips converging along a diminishing portion of the core to come into direct contact with the tongue portion of the blade, to which they are bonded.

This invention relates generally to hockey sticks, and has particularly to do with a hockey stick construction which is adapted to provide greater strength to the hockey stick, especially in the region of the handle which is adjacent the blade.

BACKGROUND OF THIS INVENTION

Hockey sticks are subject to fracture and breakage from a number of causes. Because of the considerable forces to which the blade of a hockey stick is exposed, particularly during slapshots or when the hockey stick is banged against the ice, the part of the handle which is subject to the greatest bending moments, and thus the greatest likelihood of fracture, is the lower part of the handle just adjacent the blade. In most hockey sticks, the handle narrows to some extent as it approaches the blade so as to define a smooth transition to the narrower width of the blade, and this adds a further complication in that the handle is weaker at the location where its section is diminishing.

GENERAL DESCRIPTION OF THIS INVENTION

In view of the foregoing problems, it is an object of an aspect of this invention to provide a hockey stick construction in which the strength at the lower portion of the handle is increased.

To summarize the invention, the increased strength at the lower portion of the handle is brought about by providing a composite handle having a centre core of weak material such as softwood and two outside strips of considerably higher strength, such as laminated birch, and by arranging for the high-strength laminations to continue all the way down to the bottom of the blade, i.e. the heel of the hockey stick, so that the high-strength laminations actually contact and are bonded to the material of the blade.

More specifically, this invention provides a hockey stick comprising a handle and a blade, the handle being substantially rectangular in section. The handle has a first pair of sides parallel with the plane of the blade and a second pair of sides perpendicular to the plane of the blade. The handle includes two high-strength strips of material along the first pair of sides, which strips are bonded to a lower strength core between and spacing apart the strips of material. The blade has a tongue portion bonded within a longitudinal groove at the bottom of the handle, and the core diminishes in width adjacent to and in the direction of the bottom of the handle. The high-strength strips converge along the diminishing portion of the core and come into direct contact with the tongue portion of the blade, to which they are bonded.

GENERAL DESCRIPTION OF THE DRAWINGS

One embodiment of this invention is illustrated in the accompanying drawings in which like numerals denote like parts throughout the several views, and in which:

Figure 1 is a back view of a composite intended to provide the handle of a hockey stick, at a first stage in the manufacture of the stick;

Figure 2 is a perspective view of the composite of Figure 1 at a subsequent stage in the manufacture;

Figure 3 is a sectional view taken at the line 3-3 in Figure 2;

Figure 4 is a perspective view of the bottom portion of a hockey stick in a completed form; and

Figure 5 is a sectional view taken at the line 5-5 in Figure 4.

DETAILED DESCRIPTION OF THE DRAWINGS

Attention is first directed to Figure 1, in which a composite elongated member 10 is seen to include a core 12 and two side strips 13 and 14 which are bonded to the core. As can be seen in Figure 2 the elongated member 10 is substantially rectangular in section, and has a first pair of sides 16 (only one seen in Figure 2) which are intended to be parallel with the plane of the blade in the final form of the hockey stick, and a second pair of sides 18 (only one seen in Figure 2) which are perpendicular to the plane of the ultimate blade of the hockey stick.

The strips 13 and 14 are of high-strength material, and in a preferred embodiment are made of 10-ply laminations of hardwood such as birch. The core 12 lies between the strips 13 and 14 and spaces them apart, the core being of a lower strength material such as basswood or poplar. Alternatively, the core could be of a laminated construction, and could even include certain hollow portions due to the fact that the core 12 is not called upon to provide any appreciable strength component for the hockey stick, but merely spaces the strips 13 and 14 apart.

As can be seen in Figure 1, toward the leftward end of the elongated member 10 (in the direction of the blade of the ultimate hockey stick) the core 12 diminishes in width in a progressive manner, i.e. converges in the direction at the bottom of the handle (the leftward end). This allows the high-strength strips 13 and 14 to converge together along the diminishing portion 12a of the core 12. In the stage illustrated in Figure 1, the strips 13 and 14 come practically together at the lower end 20 of the elongated component 10. Two wedges of filler material 22 are glued or otherwise bonded outside the diminishing region of the strips 13 and 14, so that the elongated member 10 retains its basic width throughout its length. This is necessary for the manufacturing procedure but the wedges 22 are ultimately removed during the finishing process.

In Figure 1, a broken line 24 defines the outline of a groove 25 which is cut through the elongated member 10 parallel to the sides 16, after a filler block 27 has been glued adjacent the lower or leftward end of the elongated member 10 in the manner shown in Figure 2. As can be seen in Figure 2, the slot 25 extends through both the elongated member 10 and the filler block 27. As can be further seen in Figures 1 and 2, the groove 25 (outlined by the broken line 24) is wider at its leftward (bottom) end than at its rightward (upper) end. As can be further seen in Figure 1, the groove 25 is such as to cut through the lower portion of the strips 13 and 14. This will mean that when the blade is secured within the groove 25, it will be directly contacted by the strips 13 and 14 so that the latter can be bonded to the blade.

More specifically, the blade of the hockey stick is provided with a tongue portion which snugly fits within the groove 25,the top of the tongue portion being as shown in broken line at 27a in Figure 4. Thus, both the elongated member 10 and the filler block 27 surround the tongue 28 of the blade 30.

After the blade has been glued in place with its tongue in the groove 25, the final finishing operations on the hockey stick are undertaken. These have the effect of shaping the blade itself into its final configuration, of removing the wedge portions 22, and of tapering and smoothing the strips 13 and 14 against the blade 30. This may entail removing some of the outer laminations of the strips 13 and 14 in the region of the blade, but the manufacturing procedure leaves a direct contact between the tongue 28 of the blade 30 and at least some of the laminations of the strips 13 and 14. Thus, the high-strength and resistance to bending moments which is attributed to the stick by the strips 13 and 14 continue all the way to the blade 30, and particularly through the narrowing portion at the bottom of the handle.

While a particular embodiment has been described and shown in this specification, it will be apparent to those skilled in the art that modifications and changes may be made therein without departing from the scope of this invention as set forth in the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows :

1. A hockey stick comprising a handle and a blade, the handle being substantially rectangular in section and having a first pair of sides parallel with the plane of said blade and a second pair of sides perpendicular to the plane of said blade, the handle including two high-strength strips of material along the said first pair of sides which are bonded to a lower strength core between and spacing apart said strips of material, the blade having a tongue portion bonded within a longitudinal groove at the bottom of the handle, the core diminishing in width adjacent to and in the direction of the bottom of the handle, the high-strength strips converging along the diminishing portion of the core and coming into direct contact with said tongue portion of the blade, to which they are bonded.

2. The hockey stick claimed in claim 1, in which the high-strength strips each include laminations of hardwood.

3. The hockey stick claimed in claim 2, in which the hardwood is birch.

4. The hockey stick claimed in claim 1, claim 2 or claim 3, in which the core is solid softwood.

5. The hockey stick claimed in claim 1, claim 2 or claim 3, in which the core is solid and is of a material selected from the group 1) basswood, 2) poplar.

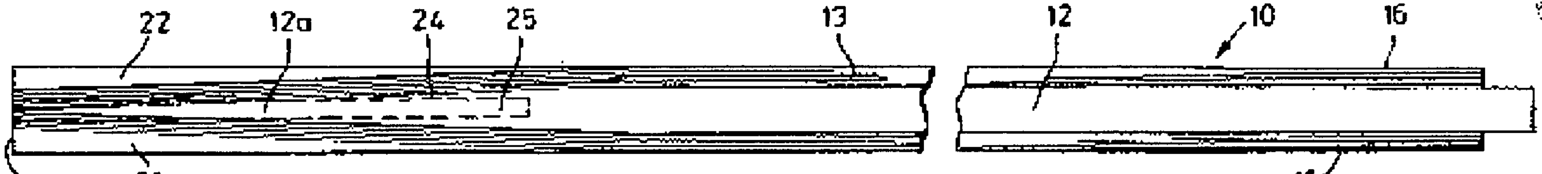

FIG. 1

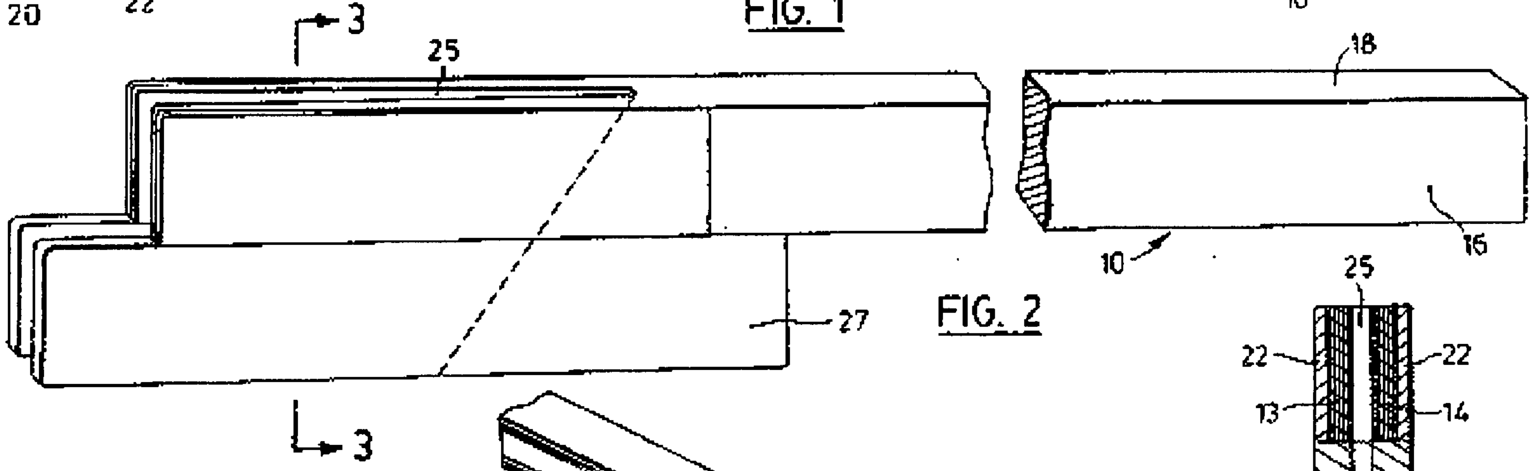

FIG. 2

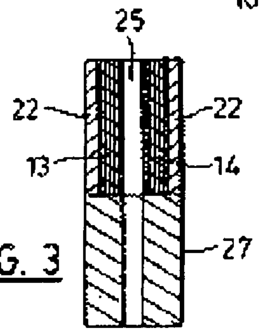

FIG. 3

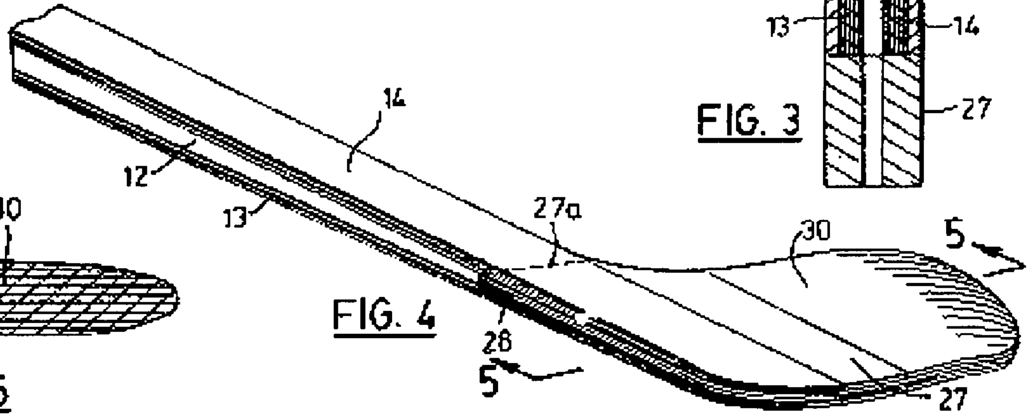

FIG. 4

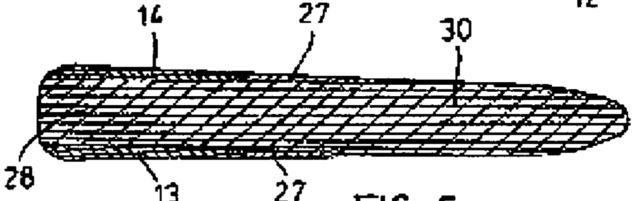

FIG. 5